

Your Gut May Know You're Stressed Before Your Brain Does

Did you know you have more bacterial cells than human cells in your body?

These tiny microbes—especially those in your gut—do more than digest food. They influence your brain, mood, immune system, metabolism, and even chronic disease risk.

Let's break down how your **gut microbiome** could be impacting your physical and mental health:

Gut Health & Whole-Body Impact

- **Depression**
Over a third of people with depression show signs of *leaky gut*, which allows toxins to enter the bloodstream and affect mood.
- **Anxiety**
Prebiotics and probiotics can reduce anxiety by supporting the gut-brain axis.
- **Autism Spectrum Disorders**
Often associated with digestive issues like IBS and altered microbiome composition.
- **Schizophrenia**
Mouse models show that abnormal gut bacteria may impact brain development and neurotransmitters.
- **Parkinson's Disease**
Patients with Parkinson's show distinctly different gut bacteria compared to healthy individuals.
- **Obesity & Type 2 Diabetes**
Gut dysbiosis is linked to insulin resistance, inflammation, and weight gain.
- **Colon Cancer**
Diets high in sugar can feed harmful bacteria, increasing the risk of colorectal cancer.

- **Rheumatoid Arthritis**

Low levels of good bacteria may worsen joint pain and systemic inflammation.

- **IBS, Crohn's, and Ulcerative Colitis**

These are strongly tied to gut microbiome imbalances and increased intestinal permeability.

Meet Your Gut Microbes

The Good Guys:

- ✓ **Bifidobacteria** – Support digestion, reduce inflammation, improve IBS symptoms
- ✓ **Lactobacilli** – Help ease stress, anxiety, and support immune function
- ✓ **Bifidobacterium longum** – Linked to lower levels of anxiety and depression

The Troublemakers:

- ✗ **Helicobacter pylori** – Can cause ulcers and chronic inflammation
- ✗ **Methanobrevibacter smithii** – May contribute to bloating and slow motility via methane gas

Nourish Your Second Brain

Your gut is more than a digestive organ—**it's your second brain.**

Support it daily with:

- **Prebiotic fiber** (onions, garlic, leeks, bananas)
- **Fermented foods** (kimchi, sauerkraut, kefir, yogurt)
- **Probiotics & polyphenols** (berries, olive oil, green tea)
- **Stress management, sleep, and movement**

Functional medicine starts in the gut.

When we heal the gut, we impact the whole body—including the brain.

HOW GUT BACTERIA AFFECTS THE BRAIN AND BODY

We are more bacteria than we are human. Mounting research has suggested that the bacteria living in our digestive tract play a significant role in our overall health. Here are some of the physical and mental health conditions that have been linked to imbalances in gut flora.

DEPRESSION

More than a third of depression sufferers have "leaky gut," or permeability of the gut lining that allows bacterium to seep out into the bloodstream.

ANXIETY

Prebiotics can have anti-anxiety and antidepressant effects. Consuming beneficial bacteria can also positively change the way the brain responds to the environment.

SCHIZOPHRENIA

Studies in mice have linked a lack of normal gut bacteria with changes in brain development, but the genetics of the disorder are complex and not fully understood.

AUTISM

Autism often co-occurs with gastrointestinal issues like leaky gut or irritable bowel syndrome.

PARKINSON'S DISEASE

People suffering from this disease have different gut bacteria than healthy people.

OBESITY & DIABETES

A number of studies have linked instability in the gut microbiome to obesity and obesity-related health problems.

CROHN'S DISEASE

Abnormally high levels of certain bacteria strains may be present when Crohn's Disease develops, possibly triggering an atypical immune response.

COLON CANCER

Sugar-loving microbes in the gut — along with the carbs that feed them — can fuel colon cancer. High carb-diets may even be contributing to the rise of colon cancer.

ULCERATIVE COLITIS

Imbalances in gut flora may be a main factor in both the onset and continuing symptoms of ulcerative colitis.

RHEUMATOID ARTHRITIS

Studies have found a link between low levels of certain good gut bacteria, high levels of unhealthy *Prevotella copri* bacteria, and autoimmune joint disease.

IRRITABLE BOWEL SYNDROME

There is a definitive link between IBS and an overgrowth of bacteria in the small intestines.

There are thought to be more than 5,000 species of bacteria living in the gut. Here are a few of the main players:

GOOD BAD

HELICOBACTER PYLORI
Most common bad bacteria, causes ulcers

LACTOBACILLI
May ward off stress and anxiety

METHANOBREVIBACTER SMITHII
Responsible for the majority of methane production

BIFIDOBACTERIA
Effective at treating many intestinal conditions

LACTOBACILLUS HELVETICUS
Associated with reduced anxiety and depression

BIFIDOBACTERIUM LONGUM
Also associated with reduced anxiety and depression

Sources: Psychopharmacology, Oxford University, UCLA Division of Digestive Diseases, Ahmanson-Lovelace Brain Mapping Center at UCLA, Scientific American, Acta Psychiatrica Scandinavica, The Atlantic, National Geographic, Cedars-Sinai, ScienceNews.org, The Scientist, Medical News Today, University of Helsinki Institute of Biotechnology, American Diabetes Association, Science Daily, U.S. National Library of Medicine, National Institutes of Health, LiveScience.com, WebMD.com

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Based on insights from Ahmed Mahmoud